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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,679	06/16/2005	Tohru Nakagawa	5077-243/NP	8419

52800 7590 10/24/2007  
GREGORY A. STOBBS  
5445 CORPORATE DRIVE  
SUITE 400  
TROY, MI 48098

EXAMINER

MRUK, GEOFFREY S

ART UNIT	PAPER NUMBER
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2853

MAIL DATE	DELIVERY MODE
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10/24/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/539,679

Applicant(s)

NAKAGAWA ET AL.

Examiner

Geoffrey Mruk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 5-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/16/05</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

Claims 5-12 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 14 August 2007.

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The references cited in the information disclosure statement (IDS) submitted on 16 June 2005, have been considered.

### ***Drawings***

The drawings received on 16 June 2005 are accepted.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimada et al. (US 6,294,860 B1).

With respect to claim 1, Shimada discloses a piezoelectric element comprising a first electrode (Fig. 2, element 12) a second electrode (Fig. 2, element 16) and a lead compound-containing piezoelectric body (Fig. 2, element 14) sandwiched between the first and second electrodes, wherein the piezoelectric body is made of an aggregate of a plurality of crystals (Column 9, lines 6-11), zirconium oxide exists at a grain boundary between the crystals (Column 5, lines 48-55) and zirconium element exists at the grain boundary in a larger composition ratio than lead element (Column 6, lines 6-15).

With respect to claim 2, Shimada discloses the piezoelectric body (Fig. 2, element 14) is made of an aggregate of a plurality of columnar crystals (Column 9, lines 6-12), which are oriented from one end to the other of the piezoelectric body in the thickness direction thereof (Column 9, line 7).

With respect to claim 3, Shimada discloses the piezoelectric body (Fig. 2, element 14) contains at least zirconium element, titanium element, lead element, and oxygen element (Column 4, lines 60-67).

With respect to claim 4, Shimada discloses an inkjet head comprising: a head body (Fig. 14) including a nozzle and a pressure chamber which is communicated with the nozzle and contains ink; and a piezoelectric element which is arranged to face the pressure chamber at part of one of its surfaces intersecting the thickness direction of the piezoelectric element and applies a pressure to the ink in the pressure chamber such that the ink is discharged from the nozzle to a recording medium (Column 6, lines 16-24), wherein the piezoelectric element includes a first electrode (Fig. 2, element 12), a second electrode (Fig. 2, element 16) and a lead compound-containing piezoelectric body (Fig. 2, element 14) sandwiched between the first and second electrodes, the piezoelectric body is made of an aggregate of a plurality of crystals (Column 9, lines 6-11), zirconium oxide exists at a grain boundary between the crystals (Column 5, lines 48-55) and zirconium element exists at the grain boundary in a larger composition ratio than lead element (Column 6, lines 6-15).

### ***Conclusion***

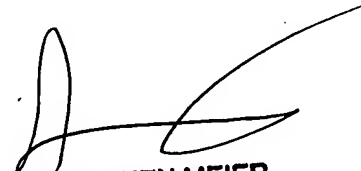
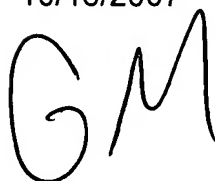
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is (571) 272-2810. The examiner can normally be reached on Monday-Friday 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GSM  
10/16/2007



STEPHEN MEIER  
SUPERVISORY PATENT EXAMINER